# Testicular torsion

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## 1 Testicular torsion occurs primarily in pubertal boys and young men

Testicular torsion, the spontaneous twisting of the spermatic cord leading to compromise of testicular blood flow, occurs in 1/4000 males younger than 25 years and rarely in newborns.[1] Risk factors include underlying bell clapper deformity, undescended testicle, trauma and prior intermittent torsion.[1]

## 2 Testicular torsion should be considered in patients with acute testicular pain or lower abdominal pain

The risk of testicular torsion can be assessed with the TWIST (Testicular Workup for Ischemia and Suspected Torsion) score. Scoring is as follows: testicular swelling (2 points), hard testis (2 points), absent cremasteric reflex (1 point), nausea and vomiting (1 point), and high-riding testis (1 point). A score of 0 is predictive of nontorsion, and a score of 6 or 7 is highly predictive of testicular torsion.[2]

## 3 Testicular torsion accounts for a minority of cases of acute scrotum

Testicular torsion accounts for 7%–30% of cases of acute scrotum.[1,2] Confounding diagnoses include torsion of appendix testis, typically presenting with a more insidious onset and focal tenderness at the upper aspect of the testicle.[3] Epididymo-orchitis has a more insidious onset and may present with fever, dysuria or positive urinalysis. Hydroceles are typically painless and transilluminate. Incarcerated inguinal hernias, varicoceles, testicular tumours, trauma and Fournier gangrene must also be considered.[1]

## 4 Doppler ultrasonography is the modality of choice for diagnosis

The hallmark sign of testicular torsion on ultrasonography is absence of testicular blood flow or whirlpool sign (twisting of the spermatic cord). The sensitivity of ultrasonography for testicular torsion ranges from 85% to 100%, and the specificity ranges from 75% to 100%.[4] Cases of torsion–detorsion (in which the testis twists and untwists spontaneously) can have a relatively normal appearance on ultrasonography.

## 5 Testicular torsion is a surgical emergency

Testicular salvage rates are 90%–100% with surgical correction within 6 hours of onset of testicular torsion, whereas salvage rates are 10% at 12–24 hours.[5] Direct surgical consult should be considered for patients at high risk of torsion and should not be delayed for ultrasonography confirmation when not readily available. Bilateral orchiopexy is recommended because of a small risk of contralateral torsion.[1,4]

## References

1. Palmer LS, Palmer JS. Management of abnormalities of the external genitalia in boys. In: Wein AJ, Kavoussi LR, Partin AW, et al., editors. *Campbell-Walsh urology.* 11th ed. Philadelphia: Elsevier; 2016. p. 3384-97.
2. Sheth KR, Keays M, Grimsby GM, et al. Diagnosing testicular torsion before urological consultation and imaging: validation of the TWIST score. *J Urol* 2016;195:1870-6.
3. Fujita N, Tambo M, Okegawa T, et al. Distinguishing testicular torsion from torsion of appendix testis by clinical features and signs in patients with acute scrotum. *Res Rep Urol* 2017;9:169-74.
4. Sharp VJ, Kieran K, Arlen AM. Testicular torsion: diagnosis, evaluation, and management. *Am Fam Physician* 2013;88:835-40.
5. Pogorelić Z, Mustapić K, Jukić M, et al. Management of acute scrotum in children: a 25-year single center experience on 558 pediatric patients. *Can J Urol* 2016;23:8594-601.

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